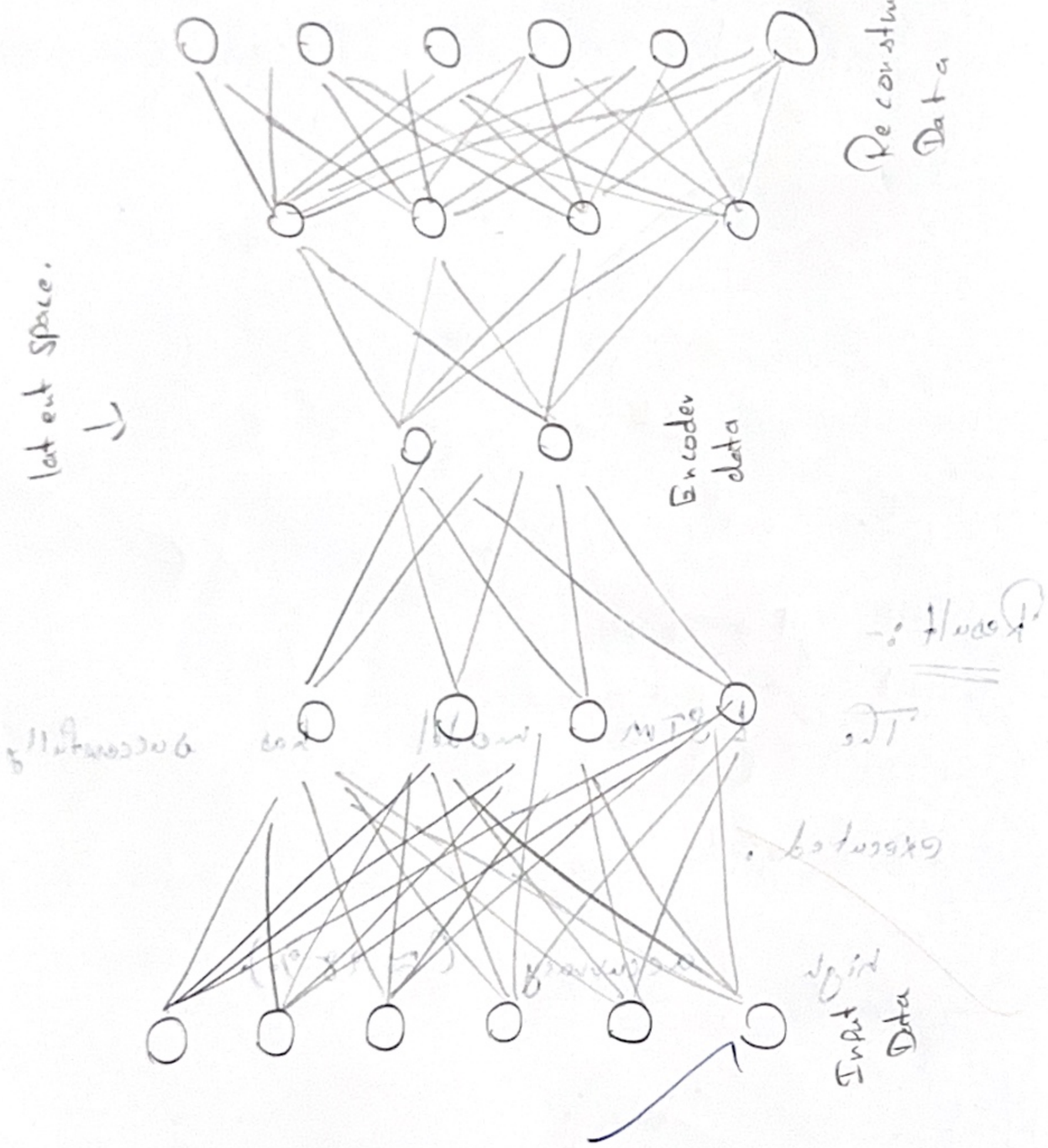
## Architecture Diagram




Exp-10

## Perform Compression on MNIST Dataset using auto encoder.

**Aim :-**

To Perform image compression on the MNIST dataset using an encoder.

**Objectives :-**

1.) Implement an autoencoder in pytorch for MNIST image Compression.

2.) use the perform data compression.

by reducing the dimensionality of input images while preserving important features.

3) Analyze reconstruction performance by comparing original images with their reconstructed versions to assess the quality of the compressed representations.

4) Gain practical experience in training neural networks.

Original

≠

~~Original~~

reconstructed

≠

Original

2

reconstructed

2

Original

≠

reconstructed

classification Report :-

| | | | | |
|---|---|---|---|---|
| 0 | 0.9519 | 0.9490 | 0.9504 | 480 |
| 1 | 0.9426 | 0.9692 | 0.9557 | 1036 |
| 2 | 0.8475 | 0.6286 | 0.7834 | 1032 |
| 3 | 0.6288 | 0.5871 | 0.6073 | 1010 |
| 4 | 0.6875 | 0.4817 | 0.3665 | 982. |
| 5 | 0.6042 | 0.5135 | 0.5552 | 892 |
| 6 | 0.8322 | 0.8712 | 0.8627 | 958. |
| 7 | 0.8750 | 0.8716 | 0.8733 | 1028. |
| 8 | 0.6165 | 0.7628 | 0.6811 | 974. |
| 9 | 0.5572 | 0.7334 | 0.6333 | 1009. |

accuracy

| | | | | |
|---|---|---|---|---|
| Macro avg | 0.7513 | 0.7460 | 0.7431 | 10000 |
| weighted avg | 0.7555 | 0.7510 | 0.7485 | 10000. |

Result :-

Successfully Perform Compression on MNIST Dataset using auto encoder.